

Abstract

A demultiplexer for an optical time-division multiplexed digital signal, which has a signal wavelength λ_s and is transmitted with a bit rate B , is described. It comprises a Raman active optical medium, a pump source for generating a periodic optical pump signal having a pump wavelength λ_p and a periodicity of B/n where n is an integer ≥ 2 , and a coupler for coupling the digital signal and the pump signal into the Raman active optical medium. The new demultiplexer exploits the non-linear Raman gain response of the Raman active medium to a high power pump signal and has a narrow time window and a high extinction ratio.